

CLAIMS

1. A method of nucleic acid amplification by using at least a mixture of the oligomers defined below, a nucleic acid containing a target nucleic acid, and reagents for amplification to produce a product nucleic acid comprising a sequence related to said target nucleic acid:

A luminescent substance- or radioisotope-labeled or modifying group-coupled oligomer A capable of hybridizing with an arbitrary specific sequence contained in the target sequence; and

An oligomer B neither labeled with the same substance as in the oligomer A nor coupled with the modifying group coupled to the oligomer A but capable of hybridizing with said specific sequence.

2. A nucleic acid amplification method as set forth in Claim 1, wherein the mixing ratio of said oligomer A to said oligomer B is 1:1 to 1:10,000.

3. A nucleic acid amplification method as set forth in Claim 2, wherein the mixing ratio of said oligomer A to said oligomer B is 1:10 to 1:500.

4. A nucleic acid amplification method as set forth in Claim 1, wherein the luminescent substance is a fluorescent substance or a chemiluminescent substance.

5. A nucleic acid amplification method as set forth in Claim 1, wherein the modifying group-coupled oligomer A is a biotinylated,

phosphorylated, aminated, digoxigenin-coupled, or thiolated oligomer.

6. An oligomer kit comprising the oligomers defined below and capable of producing a product nucleic acid comprising a sequence related to a target nucleic acid:

A luminescent substance- or radioisotope-labeled or modifying group-coupled oligomer A capable of hybridizing with an arbitrary specific sequence contained in the target sequence; and

An oligomer B neither labeled with said luminescent substance or radioisotope labeling the oligomer A nor coupled with the modifying group coupled to the oligomer A but capable of hybridizing with said specific sequence.

7. An oligomer kit as set forth in Claim 6, wherein the abundance ratio of said oligomer A to said oligomer B is 1:1 to 1:10,000.

8. An oligomer kit as set forth in Claim 7, wherein the abundance ratio of said oligomer A to said oligomer B is 1:10 to 1:500.

9. An oligomer kit as set forth in Claim 6, wherein the luminescent substance is a fluorescent substance or a chemiluminescent substance.

10. An oligomer kit as set forth in Claim 6, wherein the modifying group-coupled oligomer A is a biotinylated, phosphorylated, aminated, digoxigenin-coupled, or thiolated oligomer.

11. A method of analyzing nucleic acids which comprises the following steps:

The step of amplification in which at least a mixture of the oligomers defined below, a nucleic acid containing a target nucleic acid and reagents for amplification are used to produce a product nucleic acid comprising a sequence related to said target nucleic acid;

(A) A luminescent substance- or radioisotope-labeled or modifying group-coupled oligomer A capable of hybridizing with an arbitrary specific sequence contained in the target sequence; and

(B) An oligomer B neither labeled with said luminescent substance or radioisotope labeling the oligomer A nor coupled with the modifying group coupled to the oligomer A but capable of hybridizing with said specific sequence;

The step of coupling in which a luminescent substance is coupled to said modifying group when said oligomer A is a modifying group-coupled one; and

The step of detecting said luminescent substance or radioisotope.

12. An analytical method as set forth in Claim 11 which further comprises the following step:

The step of operation in which the amount of the product nucleic acid is calculated based on the amount of the luminescent substance or radioisotope detected.

13. An analytical method as set forth in Claim 12, wherein, in said operation step, the amount of the product nucleic acid is calculated based on the mixing ratio between said oligomer A and said oligomer B.

14. An analytical method as set forth in Claim 11, wherein the concentration of the luminescent substance- or radioisotope-labeled

target nucleic acid in the product nucleic acid-containing reaction mixture at the time of completion of said amplification step or at the time of completion of said coupling step is within the range within which said concentration can be measured by the detection apparatus used in said detection step.

15. An apparatus for producing a product nucleic acid comprising a sequence related to a target nucleic acid which apparatus comprises the following constituent elements:

A holding vessel A for holding a luminescent substance- or radioisotope-labeled or modifying group-coupled oligomer A capable of hybridizing an arbitrary specific sequence contained in said target nucleic acid;

A holding vessel B for holding an oligomer B neither labeled with said luminescent substance or radioisotope labeling the oligomer A nor coupled with the modifying group coupled to the oligomer A but capable of hybridizing with said specific sequence;

A nucleic acid amplification vessel capable of holding an aqueous solution containing at least said oligomer A, said oligomer B, reagents for amplification, and a nucleic acid containing said target nucleic acid; and

A feeding mechanism for feeding a predetermined amount of said oligomer A and a predetermined amount of said oligomer B to said nucleic acid amplification vessel.

16. A production apparatus as set forth in Claim 15, wherein the feeding ratio between said oligomer A and said oligomer B to be fed to said feeding mechanism is 1:1 to 1:10,000.

17. A production apparatus as set forth in Claim 16, wherein the feeding ratio between said oligomer A and said oligomer B to be fed to said feeding mechanism is 1:10 to 1:500.

18. A nucleic acid analyzing apparatus for detecting a target nucleic acid which comprises the following constituent elements:
A nucleic acid amplification vessel capable of holding the oligomers defined below, reagents for amplification and a nucleic acid containing said target nucleic acid and capable of producing a product nucleic acid comprising a sequence related to said target nucleic acid;
(A) A luminescent substance- or radioisotope-labeled or modifying group-coupled oligomer A capable of hybridizing with an arbitrary specific sequence contained in the target sequence; and
(B) An oligomer B neither labeled with said luminescent substance or radioisotope labeling the oligomer A nor coupled with the modifying group coupled to the oligomer A but capable of hybridizing with said specific sequence; and
a detection mechanism for detecting said luminescent substance or radioisotope or a luminescent substance coupled to said modifying group.

19. A nucleic acid analyzing apparatus as set forth in Claim 18 which further comprises the following constituent element:
A display mechanism for displaying the information depending on the amount of said product nucleic acid as calculated based on the amount of the luminescent substance detected.

20. A nucleic acid analyzing apparatus as set forth in Claim 19, wherein said display mechanism calculates the amount of said product

nucleic acid based on the mixing ratio between said oligomer A and said oligomer B.